1992
Philip Morris USA R&D
Product Development Department
Operational Plans

Confidential

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DOMESTIC PRODUCT
DEV. & SUPPORT

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PRODUCT
DEVELOPMENT

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OPERATIONAL PLANS

DOMESTIC PRODUCT DEVELOPMENT

1992

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DOMESTIC PRODUCT DEVELOPMENT AND SUPPORT PROGRAMS

1) **Product Development**

A. Premium Brands

B&H

Merit

Virginia Slims

Parliament

Marlboro

Discount Brands

Marketing Program Support
(Players Navy Cut (?) No Plans

Consumer Testing

The above program, we feel, should be in Strategic Goal #2.

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A. PREMIUM BRANDS

B&H KS LINE EXTENSION

I. **Objective:** Design and develop a B&H King Size Menthol and Regular Full Flavor and Lights

II. **Explanatory Introduction:** Expand market potential for B&H KS Menthol to 60% of population that prefers KS, specifically to appeal to younger blacks (90% of which smoke menthol).

III. **Strategies:**

Strategy I: Develop and design prototypes

A. Initial prototype design	January 1991
B. Prototype production	January 1991
C. Prototype analytical testing	February 1991

Strategy II: Investigate menthol blend MB4B vs. B&H Menthol

A. Design and produce prototypes	2nd Quarter 1991
B. Tar/menthol interaction POL's	2nd Quarter 1991
C. Blend decision	3rd Quarter 1991

Strategy III: Test designs and blends

A. Baseline regular/menthol POL's	3rd Quarter 1991
B. Adpack campaign	4th Quarter 1991
C. Specifications drafted	1st Quarter 1992
D. Extended use trial	1st Quarter 1992
E. Factory trials	March 1992
F. Second Adpack	March 1992

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Strategy IV: Redesign and develop a light menthol prototype with a higher tar/puff and menthol/puff to appeal to full flavor menthol smokers (Newport, Kool, and Salem)

A.	Initial prototype design	January 1992
B.	POL production	February 1992
C.	POL analytical testing	February 1992
D.	Ship POL	February 1992

Strategy V: Launch

A.	Factory start-up	April 1992
B.	CPC approval	April 1992
C.	National launch	September 1992

Strategy VI: Net inclusion -- driven by NET Program timetable

IV. Resource Allocations:

Warren Claflin	Technical Advisor
Morris White	Domestic Product Development
Howard Maxwell	Flavor Technology
Truman Foster	Commercial Development
Bill Geiszler	Paper Technology
Greg Patron	Filter Technology
Debbie Atkinson	POL Administration, DPD
Mable Fleming	PED
Duane Wilder	Engineering
Mark Guy	Engineering
Steve Walton	Production
Bill Atkins	Production
Sainta Haywood	Operation Services
Terry Burgess	Operation Services
Kevin Thompson	Operation Services

V. Potential Projects

- B&H KS Ultra Lights
- B&H Medium
- LS/LO and Value Added

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MERIT ULTIMA

I. **Objective:** Support Merit Ultima launch

II. **Explanatory Introduction:** The full margin products have been developed for National launch on February 17. The products offer more mainstream taste in the ultra low tar deliveries. (1mg KS/2mg 100's)

III. **Strategies:**

Strategy I: Identify and resolve filter production challenges

A. On-site inspection of production processes — 1st Quarter 1992

B. Recommendations — 1st Quarter 1992

III. **Resource Allocations:**

Warren Claflin	Technical Advisor
Barbara Monahan	Domestic Product Development
Charlie Altizer	Domestic Product Development
Janet Spruill	Domestic Product Development
Morris White	Domestic Product Development
Susan Wagner	Cabarrus, Production
Jim Pflueger	Flavor Development
Don Laslie	Filter Development

IV. **Potential Projects**

- Merit Ultima Menthol
- Low sidestream/low aroma

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3mg MERIT

I. **Objective:** Design and develop a 3mg product with the subjective attributes of a 6mg cigarette.

II. **Explanatory Introduction:** The Merit Ultra Light product needs revitalization with an added benefit. The benefit identified is equal taste at 3mgs tar to the existing 5mg tar Ultra Lights.

III. **Strategies:**

Strategy I: Design and develop initial prototypes using conventional materials

A. Prototype modelling	1st Quarter 1992
B. Prototype production	2nd Quarter 1992
C. Prototype analytical testing	2nd Quarter 1992
D. Internal subjective testing	2nd Quarter 1992

Strategy II: Design and develop prototypes using new and/or novel components

A. Blend Development	2nd Quarter 1992
B. Filter Development	2nd Quarter 1992
C. Paper Development	2nd Quarter 1992
D. Prototype production	3rd Quarter 1992

Strategy III: Evaluate prototypes

A. Baseline POL production	3rd Quarter 1992
B. Internal testing	3rd Quarter 1992
C. Monadic POL testing	4th Quarter 1992
D. Pair comparison testing	4th Quarter 1992

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Strategy IV: Net inclusion -- driven by NET Program timetable.

IV. Resource Allocations:

Warren Claflin	Technical Advisor
Charlie Altizer	Domestic Product Development
Morris White	Domestic Product Development
Jim Pflueger	Flavor Technology
Bill Geiszler	Paper Technology
Don Laslie	Filter Technology
Billy Riggan	Leaf

V. Potential Projects

- 3mg Merit Menthol
- Low sidestream/low aroma and value added

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6mg MERIT

I. **Objective:** Design and develop a 6mg product with the subjective attributes of a 8mg cigarette.

II. **Explanatory Introduction:** The 8mg flavor low Merit needs revitalization with an added benefit. The benefit identified is equal taste at 8mg as at 6mg.

III. **Strategies:**

Strategy I: Design and develop initial prototypes using conventional materials

A. Prototype modelling	1st Quarter 1992
B. Prototype production	2nd Quarter 1992
C. Prototype analytical testing	2nd Quarter 1992
D. Internal subjective testing	2nd Quarter 1992

Strategy II: Design and develop prototypes using new and/or novel components

A. Blend investigations	2nd Quarter 1992
B. Filter investigations	2nd Quarter 1992
C. Paper investigations	2nd Quarter 1992
D. Prototype production	3rd Quarter 1992

Strategy III: Evaluate prototypes

A. Baseline POL production	3rd Quarter 1992
B. Internal testing	3rd Quarter 1992
C. Monadic POL testing	4th Quarter 1992
D. Pair comparison testing	4th Quarter 1992

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Strategy IV: Net inclusion -- driven by NET Program timetable.

IV. **Resource Allocations:**

Warren Claflin	Technical Advisor
Charlie Altizer	Domestic Product Development
Morris White	Domestic Product Development
Jim Pflueger	Flavor Technology
Bill Geiszler	Paper Technology
Don Laslie	Filter Technology
Billy Riggan	Leaf

V. **Potential Projects**

6mg Merit Menthol

Low sidestream/low aroma and value added

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VIRGINIA SLIMS KING SIZE

I. **Objective:** Design and develop Virginia Slims King Size, Regular and Menthol line extensions

II. **Explanatory Introduction:** Virginia Slims 100's smokers have become older. Young smokers are not entering the brand. The King Size products with social benefit have been identifed as a possible way to attract young smokers while ot loosing those currently attracted by 100's.

III. **Strategies:**

Strategy I: Develop and design prototypes at 24.0 circumference

A.	Initial prototype design	February 1992
B.	Prototype production	February 1992
C.	Prototype analytical testing	March 1992
D.	Evaluate alternate blends/flavors	March/April 1992
E.	Generic prototypes (generic program)	1st Quarter 1992

Strategy II: Develop paper specifications needed to achieve both a 9mg to 11mg LSS product, driven by taste equal to 11mg tar

A.	Design and produce prototypes	1st Quarter 1992
B.	Determine commercialization of specified paper	2nd Quarter 1992

Strategy III: Evaluate application methods for GEV to the cigarette paper

A.	Develop specifications for GEV	September 1992
B.	Develop specifications for GEV added to the rod seam adhesive	November 1992
C.	Modify unit to apply adhesive uniformly	November 1992
D.	Investigate coating cigarette paper with GEV	September 1992

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IV. **Resource Allocations:**

Linda Wettle	Domestic Product Development
Jim Pflueger	Flavor Technology
Barbro Goodman	Paper Technology
Ray Jones	Operations Services
Pete Talley	Engineering
Arlington Finley	Filter Development
A. Manwaring	PED
P. Callaham	

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VIRGINIA SLIMS SUPERSLIMS

I. **Objective:** Design and develop a 9mg Virginia Slims Superslims regular and menthol

II. **Explanatory Introduction:** Based on information to date, the VSSS at 6mg tar using low sidestream cigarette paper is rated stronger than Capri at 9-10mg tar. Low sidestream cigarette paper gives a higher strength perception. It is not recommended that the current product be increased in tar since the increased tar would move the VSSS product further away in sensorial perception from Capri.

III. Strategies:

Strategy I: Develop and design prototypes

A. Initial prototype production	October 1991
B. Prototype production	December 1991
C. Prototype analytical testing	January 1992

Strategy II: Develop paper specifications needed to achieve 9mg product (LSS)

A. Design and produce prototypes with current available papers	1st Quarter 1992
B. Specify and commercialize paper	2nd Quarter 1992

Strategy III: Determine filter and ventilation changes necessary to achieve a 9mg product

A. Design and produce prototypes	2nd Quarter 1992

Strategy IV: Consumer testing

A. POL testing	June 1992

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IV. Resource Allocations:

Linda Wettle	Domestic Product Development
Barbro Goodman	Paper Technology
Arlington Finley	Filter Technology
Ray Jones	Operations Services
Jim Pflueger	Flavor Development
Armine Manwaring	PED

V. Potential Projects:

- Prototypes produced with conventional blends, i.e., Marlboro and B&H Lights -- June 1991
- Prototypes produced with conventional papers and blends -- December 1991
- Cost effective charcoal filter for export

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PARLIAMENT LIGHTS MENTHOL

I. **Objective:** Develop a 9.0mg tar Parliament Lights Menthol LS FTB, 10's LS FTB, and 100's SP product for Region I test market to compete with Newport Lights.

II. **Explanatory Introduction:** Expand appeal for Parliament with recessed filters for approximately 28% of smokers in Region I who prefer menthol. Newport Lights is major competitor. Parliament is strong in Region I. Region I is also a strong menthol and box market.

III. **Strategies:**

Strategy I: Develop and design prototypes

A.	Research Newport Lights	July 1991
B.	Produce prototypes in Semiworks	July 1991
C.	Prototype analytical testing	July 1991

Strategy II: Refine prototype design

A.	Redesign prototype to reflect size change from LS to KS	1st Quarter 1992
B.	Refine menthol levels	1st Quarter 1992
C.	Factory trial	2nd Quarter 1992
D.	Trial analytical testing	2nd Quarter 1992
E.	Specifications	3rd Quarter 1992

Strategy III: Launch

A.	CPC approval	4th Quarter 1992
B.	Production start-up	4th Quarter 1992
C.	Region I Launch	1st Quarter 1993

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IV. **Resource Allocations:**

Warren Claflin	Technical Advisor
Morris White	Domestic Product Development
Tom Gannon	Flavor Technology
Judy Ryder	Filter Technology
Bill Geiszler	Paper Technology
Terry Burgess	Operation Services
Jack Horne	Operation Services
Kevin Thompson	Operation Services
Bill Atkins	Production
Bill Wray	Engineering
Charlie Hansen	Engineering

V. **Potential Projects**

- Parliament FF Menthol

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B. MARLBORO

MARLBORO

I. **Objective:** Implement cost effecive modifications to the current packings. Extend the Marlboro family line with logically timed and positioned products as determined by market strategies.

II. **Explanatory Introduction:** Elevate the brands income, share, and volume by providing line extensions in tar positions appropriate to meet PM and competitive needs. Product effective issues for full margin brands include initiatives to adjust blend components and incorporate technological improvements for advancing the quality of the family both in manufacturing and in the market place.

MARLBORO MEDIUM 100's

I. **Objective:** Develop 100mm line extension of MF Medium KS delivering similar sensory response to the KS product. Position product sensorially between Marlboro Lts and Marlboro Gold Full Flavor.

III. **Strategies:**

Strategy I: Develop and design prototypes

A. 12mg tar/9.0 puffs	Complete
• Design/prototypes	
• Consumer testing	
• Specifications	
B. <13.5 tar/10.0 puffs	
• Design	February 1992
• POL production	February 1992
• Specifications	February 1992
C. 14.0 tar/10.0 puffs	
• Design	February 1992
• Prototypes	February 1992
D. Product Decision	February/March 1992

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Strategy II: Factory trials for national launch

A. 100mm soft pack/box products	March 1992

Strategy III: National launch

A. Production start-up	April 1992
B. Launch	June 1992

Strategy IV: Net Inclusion

A. Net incorporation as dictated by timeframe of the NET program	TBD
B. National launch	TBD

IV. **Resource Allocations:**

J. Spruill/M. White	Domestic Product Development
R. Newsome	Filter Technology
M. Garrett	Flavor Development
B. Joyner	PED

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MARLBORO/MARLBORO LIGHTS

I. **Objective:** Design and implement blend modification studies for component reformulation, off-shore removal and incorporation of higher levels of expanded material.

II. **Explanatory Introduction:**

III. **Strategies:**

Strategy I: ESB reformulation/off-shore removal

A. Design/prototypes	Complete
B. POL testing	Complete

Strategy II: Design and develop prototypes incorporating component reformulations including higher expanded levels.

A. Prototype production	February 1992
B. Evaluations - analytical/subjective	March 1992
C. POL testing	2nd Quarter 1992
D. Refinements	3rd Quarter 1992
E. Implementation	As Directed

Strategy III: NET Inclusion

A. Net incorporation as available by timeframe of NET Program

IV. **Resource Allocations:**

J. Spruill	Domestic Product Development
M. Garrett	Flavor Development
A. Manwaring	PED
R. Keatts	Leaf Department

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MARLBORO EXTRA LIGHTS

I. **Objective:** Develop line extension which delivers 1.1-1.2 tar/puff at 8.0-9.0mg tar.

II. **Explanatory Introduction:**

III. **Strategies:**

Strategy I: Design and develop prototypes

A. Design/prototypes	Complete
B. Consumer testing	Complete
C. Specifications	Complete
D. Factory trial	Complete

Strategy II: Net inclusion

A. Net incorporation as available by timeframe of the NET program	3rd Quarter 1992

Strategy III: Status

A. Shelf item	Available

IV. **Resource Allocations:**

W. Claflin	Technical Advisor
B. Hendricks	Domestic Product Development
M. Garrett	Flavor Development
A. Manwaring	PED
B. Riggan	Leaf Department
R. Jones	Operations Services

V. **Potential Projects**

- MF Extra Lights Menthol KS/100's
- MF Extra Lights 100mm Regular

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MARLBORO ULTRA LIGHTS

I. **Objective:** Develop 6mg line extension in KS and 100's providing enhanced subjective quality and Marlboro character.

II. **Explanatory Introduction:**

III. **Strategies:**

Strategy I: Design, develop, and implement line extension (6mg)

A. Factory trial/specifications	February 1989
B. Test market introduction Red pack/cork tipping Blue pack/white tipping	May 1989
C. Added test market introduction Red pack/white tipping	October 1989
D. Specifications	Complete

Strategy II: Test market monitoring

A. Ongoing	1992

Strategy III: Net Inclusion

A. Net incorporation as available by timeframe of the NET program

IV. **Resource Allocations:**

B. Hendricks/J. Spruill	Domestic Product Development
M. Garrett	Flavor Development
R. Keatts	Leaf Department
E. Weston	Operations Services

V. **Potential Projects**

- Menthol Companions

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MARLBORO WIDES

I. **Objective:** Develope KS 80/83mm full flavor/lights products at an increased circumference

II. **Explanatory Introduction:** Camel Box full flavor/lights wides have been introduced. To capitalize on this opportunity to provide more (27.0mm circumference) to the consumer, steps have been initiated to investage existing blends, construction parameters, and packaging to add benefits in excess of competition and to deliver product in a timely fashion.

III. **Strategies:**

Strategy I: Model configurations/produce prototypes in 80/83mm length utilizing Marlboro, Bucks, Bristol blends

A.	Design Models	February 1992
B.	NTM designated/ordered	February 1992
C.	Prototype production	February/March 1992
D.	Analytical/Subjective	February/March 1992

Strategy II: Address issues necessary to accommodate R&D and production concerns

A. Processing — 1st Quarter 1992
- CPI
- Blends
- OV's/CV's
- Loose ends

B. NTM — 1st Quarter 1992
- Paper
- Filters

C. Equipment — 1st Quarter 1992
- Makers
- Packers
- Cartons

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Strategy III: Consumer testing definitions

- How/Whys? 1st/2nd Quarter 1992
- Product definition (FF/Lts, etc.)
- Types
- Market I.D.

Strategy IV: Test market/launch to be evaluated

IV. **Resource Allocations:**

D. Newman	Domestic Product Development
J. Spruill	Domestic Product Development
W. Claflin	Domestic Product Development
M. Garrett	Flavor Development
R. Newsome	Filter Development
E. Woolridge	Engineering
B. Goodman	Paper Development

V. **Potential Projects**

- Wides in different lengths and delivery categories

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C. DISCOUNT BRANDS

ALPINE

I. **Objective:** To determine what modifications, if any, are necessary to enhance the performance of the product in the market place.

II. **Explanatory Introduction:** Previous consumer testing, both Alpine king size and 100's has shown no significant subjective differences from Salem among full flavor smokers. The data base indicates that there is no product problem.

III. **Strategies:**

Strategy I: Consumer testing

A. POL 04010 Alpine FF, KS, SP	February 1992
B. POL 04009 Alpine Lts, KS, SP	March 1992
C. POL 0690 Alpine Lts, 100's, SP	February 1992

IV. **Resource Allocations:**

B. Monahan	Domestic Product Development
M. Fleming	PED

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BUCKS

I. **Objective:** Design and develop line extensions for Bucks.

II. **Explanatory Introduction:** Bucks was initially represented in the market place with full flavor and lights KS. Fill voids in the product family. These products are being developed to take advantage of Bucks' name, in extending the family, and to further advise the increasing generic market.

III. **Strategies:**

Strategy I: Develop and design prototypes

A. Initial prototype design	September 1991
B. Prototype production	September 1991
C. Prototype analytical testing	October 1991

Strategy II: Implement aftercut modification on all line extensions for Bucks

A. Design and produce the following prototypes with new aftercut:

Bucks 100 Lights	1st Quarter 1992
Bucks 100 Ultra Lights	1st Quarter 1992
Bucks 100 Full Flavor	1st Quarter 1992
Bucks 100 Lights	1st Quarter 1992
Bucks KS Menthol Full Flavor	1st Quarter 1992
Bucks KS Menthol Lights	1st Quarter 1992
Bucks Full Flavor 83mm	1st Quarter 1992

B. POL testing

Bucks 100 Full Flavor	April 1992
Bucks 100 Lights	May 1992

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Strategy III: Complete specifications and factory trials with packaging.

A.	Determine viable launch schedule	TBD
B.	Packaging approval	TBD
C.	Schedule factory trial	TBD
D.	Final specifications and CPD approval	TBD

IV. **Resource Allocations:**

Buddy Peace	Cigarette Technology
Warren Claflin	Technical Advisor
George Yatrakis	Flavor Development
Judy Ryder	Filter Development
Bill Geiszler	Paper Development
Mable Fleming	PED

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Slims 100's

I. **Objective:** Design and develop a generic 100mm with 23.0 circumference to compete with Misty.

II. **Explanatory Introduction:** Defensive measure to address 100mm slims market in the price value format. This also represents an alternate for the Virginia Slims product line.

III. **Strategies:**

Strategy I: Develop and design prototypes from existing generic blends.

A. Initial prototype design	November 1991
B. Prototype production	November 1991
C. Prototype analytical testing	November 1991

Strategy II: Design refinements fabricate new prototypes

A. Design and produce prototypes	1st Quarter 1992
B. Blend decision	1st Quarter 1992
C. Draft specification	2nd Quarter 1992

IV. **Resource Allocations:**

Warren Claflin	Technical Advisor
Barbara Monahan	Domestic Product Development
Truman Foster	Commercial Development
Armine Manwaring	PED
Sainta Haywood	Operations Services

V. **Potential Projects:**

- Generic 100mm 23.0 circumference menthol

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Full Flavor Menthol

I. **Objective:** Design and develop a generic KS and 100mm menthol full flavor SP

II. **Explanatory Introduction:** Products are being developed and positioned to fill voids in our existing generic line of products.

III. **Strategies:**

Strategy I: Develop and design prototypes from existing blend.

A. Initial prototype design	October 1991
B. Prototype production	November 1991
C. Prototype analytical testing	November 1991
D. Specifications	December 1991

Strategy II: Launch

A. CPC Approval	1st Quarter 1992
B. Production start-up	April 1992

IV. **Resource Allocations:**

Warren Claflin	Technical Advisor
Barbara Monahan	Domestic Product Development
Truman Foster	Commercial Development
Mable Fleming	PED

V. **Potential Projects:**

- Generic KS and 100mm menthol full flavor box

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PROJECT AMBROSIA I

I. **Objective:** Develop cigarette prototypes which exhibit a vanilli-like sidestream aroma.

II. **Explanatory Introduction:** Development initiated to meet competitive challenge of the Horizon brand. Product line will address social acceptability benefit.

III. **Strategies:**

Strategy I: Design, develop and POL test prototypes

A.	POL test 23.0/100mm regular and menthol 9 and 11mg tar products	2nd Quarter 1990
B.	POL test 24.0/100mm	2nd Quarter 1990
C.	Ad Pack test	3rd Quarter 1990
D.	POL test 24.8/100mm regular and menthol .15 and 3mg/cigt. GEV targets	2nd Quarter 1991
E.	24.8/85mm prototypes	4th Quarter 1991
F.	Focus group test 24.8/85mm vs. 24.0/100mm	4th Quarter 1991

Strategy II: Commercialization of GEV and application method to product

A.	Develop specifications for GEV	September 1992
B.	Develop specifications for GEV added to the rod seam adhesive	November 1992

IV. **Resource Allocations:**

Linda Wettle	Domestic Product Development
Barbro Goodman	Paper Technology
Pete Talley	Engineering
George Yatrakis	Flavor Development

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PROJECT AMBROSIA II

I. **Objective:** Develop 24.8 KS and 24.0 100mm cigarettes which provide reduced visible sidestream and acceptable mainstream taste.

II. **Explanatory Introduction:** Program initiated to increase share and volume by providing either a free standing or line extension of existing brand to address a consumer benefit for the smoker in sidestream visibility reduction, reduced sidestream aroma or a combination of the two.

III. **Strategies:**

Strategy I: Design and develop prototypes at 24.8 circumference KS and 24.0 circumference 100mm

A. Prototype production	Complete
B. Consumer testing Phase I	Complete

Strategy II: Refinement of paper specifications/commercialization and improvements for mainstream taste

A. Identify paper and parameters for commercial manufacture	TBD
B. Prototype production	4th Quarter 1992
C. Consumer testing	1st Quarter 1993

IV. **Resource Allocations:**

Linda Wettle	Domestic Product Development
Jim Pflueger	Flavor Development
Barbro Goodman	Paper Technology
Barbara Joyner	PED
Mable Fleming	PED
Arlington Finley	Filter Development

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E. CONSUMER TESTING

POL's

I. **Objective:** Generate a data base of strength and liking scores for PM and competitors' products to identify new product opportunities and product/process improvments.

II. **Explanatory Introduction:** The data base is reviewed on an ongoing basis to identify needs for additional data and those data points needing additional verification.

III. **Strategies:**

Strategy I: Routine testing of Philip Morris and competitor's product

A.	Compile with PED routine product tests for 1992	Dependent upon POL requested ship dates
B.	Issue official POL request sheet	Ongoing
C.	Review of POL sheets for accuracy and signature approval	Ongoing
D.	Fabrication requests to Semiworks	As required by schedule
E.	Coordination/scheduling of Semiworks job requirements to accomplish specified ship dates	As required by schedule
F.	Submit samples to CI for analytical results	As required by schedule
F.	Review of analytical vs. product product specifications/historical data	As required by schedule
G.	Submit to Richmond Panel for subjective approval to ship	As required by schedule
H.	Communicate accept/reject status to Semiworks for shipment	As required by schedule
I.	Prepare data for PED/Product Development review	As required by schedule

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Strategy II: Supply product for non-standard POL's

A.	Determine special production requirements with PED	As required by schedule
B.	Request product from Semiworks or factory	As required by schedule
C.	Schedule and coordinate Semiworks job requirements to accomplish requested ship dates	As required by schedule
D.	Factory packet preparation	As required by schedule
E.	Coordinate/monitor test production at specified location	As required by schedule
F.	Submit samples for analytical evaluation	As required by schedule
G.	Review analytical data for adherence to product specifications and historical data	As required by schedule
H.	Submit to Richmond Panel for subjective approval	As required by schedule
I.	Communicate accept/reject status for shipment	As required by schedule
J.	Prepared data for PED/Product Development review meetings	As required by schedule

Strategy III: POL's for New Product Development

A.	Identification of new product POL's for testing	As required by schedule
B.	Coordinate ship dates, semiworks request/ production and deadline for results	As required by schedule
C.	Provide assistance to Project Coordinator as needed for sample production	As required by schedule
D.	Submit samples for analytical	As required by schedule
E.	Review analytical data for adherence to product specifications and historical data	As required by schedule
F.	Submission to Richmond Panel for subjective approval	As required by schedule

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G.	Communicate accept/reject status for shipment	As required by schedule
H.	Data preparation for PED/Product Development review meetings	As required by schedule

Strategy IV: POL's for Product/Process Improvement Programs

A.	Coordination with Flavor Technology for POL's necessary to evaluate product and process improvement changes	As required by schedule
B.	Coordinate with PED regarding official POL requests	As required by schedule
C.	Coordinate ship dates, Semiworks request/ production and timing	As required by schedule
D.	Communicate with Product Development coordinator regarding test requirements	As required by schedule
E.	Submit samples to CI for analytical results	As required by schedule
F.	Review analytical data for adherence to product specifications and historical data	As required by schedule
G.	Notify Flavor Technology that cigarettes are complete and request their evaluation	As required by schedule
H.	Submit to Richmond Panel for subjective approval	As required by schedule
I.	Communicate accept/reject status of prototypes evaluated by the Richmond Panel	As required by schedule

III. **Resource Allocations:**

PED	Panel Dependent
Semiworks	D. Birdsong
Operations Services	As assigned
Technical Services	As assigned
CI Laboratory	Group
Domestic Product Development	D. Atkinson-Ballos
Flavor Technology	Program Dependent
Flavor Smoking Panel	Program Dependent
Richmond Smoking Panel	
Precon	

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TECHNOLOGY

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PRODUCT DEVELOPMENT TECHNOLOGY

A.	Low Tar / High Flavor	
B.	Project Art	
C.	Project Ambrosia	
D.	Consumer Testing	To be supplied by PED
E.	Consumer Testing	To be supplied by PED
F.	(New Packaging Concepts)	Added value to be supplied by John Hearn
G.	Data Base Management	B. Maher

Should be Stratetic Goal #3

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LOW TAR/HIGH FLAVOR

I. **Objective:** Develop new technologies which will allow us, within the next two to four years, to produce "Ultra Low" tar, 2 to 4mg, cigarettes with the sensorial experience of "Lights" or "Full Flavored" cigarettes.

II. **Explanatory Introduction:** Recent developments in filter and paper technology, innovative use of expanded tobacco and blending, and creative flavor development have led to the successful development of exceptionally good "Ultra Low" delivery cigarettes; "Merit Ultima."® These cigarettes will, however, have only limited appeal to "Lights" and "Full Flavor" smokers.

Several interesting things have happened both within and outside the tobacco/cigarette industry. We are seeing competition for our consumers form outside our industry, primarily from the drug industry. The "competing" products are, for example, nicotine chewing gum, nicotine patches and inhalers.

Within our industry, Premier by RJR and Delta, our response, and most notably our Beta, have demonstrated unique ways to compete with "conventional" cigarettes. These cigarette-like articles have also demonstrated the gross inefficiency of our conventional products. Full flavor cigarettes use 750mg of filler to deliver 16mg of tar and Ultra Low tar cigarettes use 500mg of filler to delivery 1-2mg of tar. Beta uses about 40mg of tobacco to provide subjective response.

If we use new technology, learn from Beta and what the competition is doing, we can maximize what we do best, make cigarettes minimizing the tobacco and tar and maximizing the nicotine delivery. We should be able to produce a product that appears to perform similarly to conventional cigarettes but with very little "tar" (2-4mg) and about 1mg of nicotine, and with the sensorial satisfaction of a 12-14mg cigarette.

III. **Strategies:**

Strategy I: Determine the parameters that control the temperature of a cigarette with the goal of reducing the temperature to somewhat above the distillation temperature of nicotine but below combustion temperatures and develop technologies to achieve this goal.

Strategy II: Minimize the amount of selected filler for cigarette construction.

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Strategy III: Determine the type of tobacco material to be designed to aid in control of burn rate, puff count, and generation of specific compounds such as water.

Strategy IV: Determine how to develop filters to provide satisfactory resistance with minimal filtration properties for specific compounds such as nicotine and water.

Strategy V: Develop cigarette papers to prevent "rod collapse" and provide positive sidestream and mainstream attributes.

Strategy VI: Determine and develop flavor compounds to be added to the smoke to enhance the sensorial effect.

Tactics:

Participation required from:

Domestic Product Development and Support
NET
Flavor Technology
Tomorrow
Cast Leaf
Chemical Research
ARD
Paper Technology
Filter Technology
NPP
Process Development

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STRATEGIC GOAL 3

ART PROGRAM
1992 OPERATIONAL PLAN
February 10, 1992

PROGRAM OBJECTIVE

Develop subjectively acceptable products with a significant reduction in nicotine delivery from filler which, through supercritical CO_2 extraction, has a reduction in nicotine content.

INTRODUCTION

The purpose of this program is to address consumers' desires with new technology driven products. To be more specific, to add value to our products by addressing the perceived health concerns of our consumers. ART Technology (supercritical CO_2 extraction) offers us a means for lowering the nicotine delivery of our products while maintaining tar delivery. To the best of our knowledge, none of our competitors have developed this technology to the point of commercialization as has Philip Morris. Therefore, if our products are successful, it would be some time before we would face any competition in this area.

The objectives of this program are two fold. Our primary objective is to develop subjectively acceptable low tar products with a nicotine-in-smoke delivery of <0.1 mg/cigt. Our second objective is to develop families of products which deliver 50% of the nicotine of a conventional product at equal tar with comparable subjective response.

The major obstacle we face with this program is overcoming the subjective deficits encountered when the nicotine is removed from the filler. These deficits take the form of low to no impact and a pronounced off-taste. The main thrust of this program is to improve the subjective character.

A. DE-NIC PROGRAM

I. Objective: Develop a family of subjectively acceptable low tar, regular and menthol products from filler which, through supercritical CO_2 extraction, has a residual nicotine level of <0.1%.

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II. Strategies:

Strategy 1 - Support the current test market in Phoenix.

1. Provide subjective and analytical support for production of test market allocation.

   Responsible Person: Tom Gannon
   Completion Date: As requested

Strategy 2 - Subjective Development/Incremental Change

Tactics:

1. Flavor Technology work continues to evaluate new flavor systems which offer an improved subjective profile. This work includes the evaluation of existing flavor materials as well as the evaluation of flavor precursors and novel botanical extracts.

   Responsible Person: Tom Gannon
   Completion Date: 4th Quarter, 1992

2. Modification of filler pH through application of basic materials in the casing:

   Responsible Person: Tom Gannon
   Completion Date: 2nd Quarter, 1992

   Complete evaluation of Calcium hydroxide casing systems.
   Completion Date: 1st Quarter, 1992

   Evaluate other materials to alter the pH of filler.
   Completion date: 2nd Quarter, 1992

3. Evaluation of construction variables and new/novel filter systems for an improved subjective profile. Produce and evaluate the following prototypes:

   10-058-A cigarette paper with 35% expanded at 9 mg tar (the Half-Nic cigt design) -- 1st Quarter, 1992

   Dual-CA/PCC filter with lower ventilation than the current De-Nic cigarette construction -- 2nd Quarter, 1992

   Dual-CA/Paper filters -- 2nd Quarter, 1992

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Evaluate optimized cigarette construction developments from the Half-Nic program -- 3rd Quarter, 1992

Responsible persons:
Construction: Barbara Hendricks
Filters: Greg Patron

4. Evaluate any technology developed in the Half-Nic portion of the ART program that yields an improved subjective profile.

Strategy 3 - Bermuda Hundred Production Facility Support

Provide all necessary support for the production facility as requested.

Strategy 4 - Support of Low Tar/High Flavor Program

Provide all necessary support for the Low Tar/High Flavor program as requested.

Strategy 5 - Evaluate and develop process modifications for the utilization of ART process by-product tobaccos.

Development of process modifications for use of post-ART stems continues. Testing in sheet materials involves substitutions for stem in RCB and RL's to determine acceptable levels. Tests of CA stems in RCB replacing Burley stems are in progress. A recommendation was made to include DLF-3B into all expanded ET products at a rate of 4% before expansion. This was implemented at the MC and Cabarrus plants on August 5, 1991 and is expected to be complete during the 1st quarter of 1992.

Responsible Person: J. Swain
Complete Date: 2nd Qtr. 1992

Strategy 6 - Utilize any information or technology developed in the Sensory Technology Program.

Responsible Persons:
Sensory Technology: R. Carchman
ART Program: G. N. Yatrakis

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B. HALF-NIC PROGRAM

I. Objective: Through the use of PM proprietary technology (ART), develop families of products which deliver 50% of the nicotine of a conventional product at equal tar with comparable subjective response.

II. Strategies:

Strategy 1 - Half-Nic Development

Tactics:

1. Modification of filler pH through application of basic materials in the casing:

Complete evaluation of Calcium hydroxide casing systems.
Completion Date: 1st Quarter, 1992
Initiate POL testing: 1st Quarter, 1992

Evaluate other materials to alter the pH of filler.
Completion date: 2nd Quarter, 1992
POL testing: 2nd Quarter, 1992

Responsible Person: Tom Gannon
Completion Date: 2nd Quarter, 1992

2. Evaluation of construction variables and new/novel filter systems for an improved subjective profile. Produce and evaluate the following prototypes:

Dual-CA/PCC filter with lower ventilation than the current Half-Nic cigarette construction at 9 mg Tar -- 2nd Quarter, 1992

Dual-CA/Paper filters -- 2nd Quarter, 1992

Responsible persons:
Construction: Barbara Hendricks
Filters: Greg Patron

3. Produce and evaluate prototypes at various tar deliveries.

~16 mg Tar, ~0.55 mg nicotine, KS and 100 mm, regular and menthol, with maximized Tar per Puff.

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Low Tar (~5 mg), ~0.2 mg nicotine, KS and 100 mm, regular and menthol with maximized Tar per Puff.

Responsible Persons:
Construction: Barbara Hendricks
Filler/coordination: Tom Gannon
Completion Date: 2nd Quarter, 1992

4. **Casing/Aftercut Development** -- Laboratory development of flavor systems will be ongoing throughout the cycle of development described above. Final flavor systems will be geared toward accentuating strength, tobacco flavor and developing a balanced product.

Responsible Person: Tom Gannon
Completion Date: 3rd Quarter, 1992

Strategy 2 - Optimize construction, subjective presentation and initiate POL testing of finished models

Initiate POL testing: 3rd Quarter, 1992

C. RESOURCE ALLOCATION ART PROGRAM

Flavor Technology Division	2.00
Cigarette Technology Division	0.50
Filter Technology Division	0.25
Analytical Research Division	1.00
Cigarette Testing	0.50
Tobacco Processing and Fabrication	2.50
Total	6.75

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G. COMPUTER APPLICATIONS

DATA BASE MANAGEMENT
(COMPUTER MODELLING)

I. **Objective:** Design and implement an integrated modelling and data base management for Product Development.

II. **Explanatory Introduction:** Product Development uses a few but important computer programs. They also interface with groups employing their own independent applications. Due to the different originators and variety of applications involved, information control and exchange is cumbersome. A system tailored to the informational flow and needs of product development will reduce prototype development time and errors. The system will be designed to interface with those implemented by the Supply Chain Project.

III. **Strategies:**

Strategy I: System Requirements Analysis

A. Identify enhancements to "design"	March 1992
B. Identify all relevant information and responsible people	May 1992
C. Present findings to management	June 1992

Strategy II: System Design

A. Define system layout and necessary hardware, data and user interfaces	August 1992
B. Present to management	August 1992

Strategy III: Software Requirements

A. Identify usable "as-is" programs	September 1992
B. Identify PM designed modules	September 1992

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Strategy IV: Preliminary Design

A. Data interface/interchange definition	November 1992
B. User interface definition	January 1993
C. Present to management and group	February 1993

Strategy V: Detailed Design

A. Refinement of user interface definition	June 1993
B. Present to management and group	June 1993

Strategy VI: Coding and Testing

A. Individual interface coding	December 1993
B. Coding of PM custom modules	February 1994

Strategy VII: Software and Hardware Integration

A. Bring first users online for testing purposes	March 1994
B. Identify and fix system deficiencies	April 1994
C. Final draft of documentation prepared	June 1994

Strategy VIII: Operations and Maintenance

A. Release system to Product Development	July 1994
B. Turnover of software and documentation to CAD	August 1994

Strategy IX: Supply Chain Project

Similar strategies and tactics will follow. Timetables will be established and resources identified as Supply Chain systems are developed and implemented.

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IV. **Resource Allocations:**

C. Altizer
Product Development, USA
W. Claflin
S. Baldwin
J. Smith
PED Coordinator
Semiworks Coordinator
CI/QA Coordinator
Operations Services Representative
W. Dwyer
B. Good
R. Lipps

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PHILIP MORRIS U. S. A.

INTER-OFFICE CORRESPONDENCE

Richmond, Virginia

RECEIVED
FEB 12 1992
J. J. MYRACLE

To: D. Leyden **Date:** February 10, 1992

From: V. Willis, G. Yatrakis, and R. Cox

Subject: 1992 Operation Plans For Existing Product Support Program

Attached, please find copies of the operation plans for those items under Existing Product Support, Domestic Product Development and Support Program. Please contact us if further information is required.

cc: R. Heretick
J. Myracle
H. Spielberg

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

ET/NET PRODUCT INCLUSION

Objective: To substitute and evaluate NET materials in existing brands.

Introduction: NET expanded materials are to be used in existing brands to increase yield and filling power. These improvements will have to be demonstrated, as well as, not effecting the subjectives of the particular brand.

Strategy I: Evaluate the substitution of NET processed #10 bright for DETA and incremental replacement of bright.

Tactics	Timetable
NET vs DETA at 12% in Marlboro cigarettes to determine physicals.	February, 1992
Incremental increase above 12% NET to test physical and subjective effects.	March, 1992

Strategy II: Evaluate models that incorporate NET processed BLDET, burley and bright in various brands initially at current rates. The qualification of increased levels of NET materials in the various blends will be done on a secondary basis. Merit, Merit Ultra Lights, and Marlboro will be evaluated first.

Tactics	Timetable
Subjective evaluations of NET processed BLDET, burley, and bright as 100% components	March, 1992
Optimize expansion parameters of burley and oriental	June, 1992
Subjectively evaluating new blends designed by Blend Development	June, 1992
Incorporation of NET materials in Merit and Merit Ultra Lights	June, 1992

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Casing and Flavor modifications, if necessary	September, 1992
POL Testing	December, 1992
Modifications, if necessary	April, 1993
Recommendations and final report	June, 1993

Resources:

Flavor Technology	B. Taylor-0.20 man-years
Flavor Technology	J. Swain 0.10 man-years
Leaf Blend Group	C. Moogalian
Process Developmnet	J. Dobbs
Cigarette Technology	B. Peace
Semiworks	G. Romig/J. Warren
CTSD	J. Lightner

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Packaging Studies: Operational Plan
1992

Strategic Goal 1: Support the company's present product lines and business operations.

I. Objective: Qualify suppliers of waterborne printing inks in order to meet fast flow inventory criteria and to have one family of brands printed with this technology.

Strategies/Tactics - Timetables

Strategy: Establish a partnership with an ink company committed to waterborne inks.

Tactic/Timetable: Provide input to Purchasing on selection of an ink company
March, 1992

Provide technical support on an as-requested basis.

Strategy: Develop an analytical procedure for determining specification levels of waterborne ink components in packaging material.

Tactic/Timetable: Investigate analytical techniques for quantitating components in this ink system.

March, 1992

Transfer method to QA and vendors.
September, 1992

Strategy: Correlate levels of waterborne ink components with subjective acceptability.

Tactic/Timetable: Determine the organoleptic threshold of components by evaluating each individually and in a mixture.
December, 1992

Strategy: Develop printing specifications for printed waterborne packaging material with respect to inks, lacquers, solvents and substrates.

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Tactic/Timetable: Evaluate each component for analytical and subjective acceptability.

December, 1992

Provide service to Purchasing when evaluating new components on an as-requested basis.

Strategy: Support the evaluation of new ink systems and/or vendors.

Tactic/Timetable: Provide analytical and subjective evaluation of new items on an as-requested basis.

Resource Allocations:

Flavor Technology:	B. Mait - Program Coordinator	- 0.5 man years
	R. Hale - Basic Investigations	- 0.5 man years
	T. Cravotta - Subjective Evaluations	- 0.5 man years
Analytical Division:	D. Ingraham - Analytical Support	- 0.3 man years

II. Objective: Qualify suppliers of offset printing for use on promotional items and low volume brands.

Strategies/Tactic - Timetable

Strategy: Develop an analytical procedure for determining specification levels of offset ink components in packaging material.

Tactic/Timetable: Investigate analytical techniques for quantitating components in this ink system.

July, 1992

Transfer method to QA and vendors.

September, 1992

Strategy: Correlate levels of offset ink components with subjective acceptability.

Tactic/Timetable: Determine the organoleptic threshold of components by evaluating each individually and in a mixture.

December, 1992

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Strategy: Develop printing specifications for printed offset packaging material with respect to inks, lacquers, solvents and substrates.

Tactic/Timetable: Evaluate each component for analytical and subjective acceptability. December, 1992

Provide service to Purchasing when evaluating new components on an as-requested basis.

Strategy: Support the evaluation of new ink systems/vendors.

Tactic/Timetable: Provide analytical and subjective evaluation of new items on an as-requested basis.

Resource Allocations:

Flavor Technology:	B. Mait - Program Coordinator	- 0.5 man years
	T. Cravotta - Subjective Evaluations	- 0.5 man years
	R. Hale - Basic Investigations	- 0.5 man years
Analytical Division:	D. Ingraham - Method Development	- 0.5 man years

III. Objective: Develop a working database for Packaging Studies. This database will contain information on vendors, ink formulations, substrates, lacquers, solvents, etc. This database will be capable of searching by various fields of input.

Strategy/Tactic-Timetable:

Strategy: Work with Computer Applications Division on developing the necessary software for the database.

Tactic/Timetable: Database to be installed. July, 1992

Resource Allocations:

Computer Applications - R. Lipps	- 0.3 man years
Packaging Studies - R. Dunaway	- 0.5 man years

IV. Objective: Determine the effects of high barrier film on our products.

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Strategy/Tactics-Timetable:

Strategy: Support Quality Engineering in the investigation of new high barrier film for use on our products.

Tactic/Timetable: Continue representing Packaging Studies on the Cigarette Shelf Life Improvement Team.

Provide analytical and subjective evaluation of films on an as-requested basis.

Resource Allocation:

Packaging Studies - 0.3 man years

V. Objective: Monitor and qualify promotional items received from Purchasing.

Strategy/Tactic-Timetable:

Strategy: Evaluate the promotional items for material, chemical and subjective acceptability.

Tactic/Timetable: Report analytical and subjective results to appropriate personnel on an as-requested basis. Subjective evaluation will continue until an analytical procedure is in place to qualify these items.

Resource Allocations:

Flavor Technology -	B. Mait/R. Dunaway, Coordinators	- 0.5 man years
	R. Hale - Analytical	- 0.3 man years
	T. Cravotta & Packaging Panel - Subjective Evaluation	- 0.25 man years

VI. Objective: Qualify packaging material for new brand introductions, line extensions and package graphics changes.

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Strategy/Tactic-Timetable:

Strategy: Evaluate new material for analytical and subjective results and report to appropriate personnel on an as-requested basis.

Resource Allocation:

B. Mait/R. Dunaway, Coordinators	- 0.5 man years
R. Hale - Analytical	- 0.5 man years
T. Cravotta & Packaging Panel - Subjective Evaluation	- 0.25 man years

Packaging Studies Resource Allocations:

Project Leader	1 man year
Scientist	1 man year
Product Testing Tech II	1 man year

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Hoechst High Barrier Films
(Support to Quality Engineering)

Objective: To determine the impact of the improved sealant layer developed by Hoechst for their high barrier OPP films, on pack seal efficiency. To determine the impact of the Hoechst film on the product's ability to maintain targeted moisture levels in the desert and jungle rooms. To perform a preliminary subjective test to qualify the Hoechst High Barrier films.

Introduction: Preliminary machine evaluations were conducted in September, 1991, which indicated the Hoechst ZNA-25 HB (100 G) had superior sealing characteristics as compared to our standard (Mobil BSR-80 G). Indications also showed approximately a 30% improvement in moisture barrier properties when exposed to adverse conditions(desert and jungle conditions).

Strategies: Repeat the testing conducted in September, 1991, to confirm the sealing characteristics of the Hoechst HB ZNA-25 on the high speed wrapper (GD 500) and the moisture barrier properties. To determine the sealing characteristics of Hoechst HB ZNA-20 (80 G) and Hoechst HB ZNA-30 (120 G). Define the sealing characteristics of each of the above and compare the results to the Mobil overwrap. Determine the moisture barrier properties of each and the impact on subjectives with the improved moisture barrier materials.

Tactics	Timetables
Production of Marlboro LS with the control (Mobil) and Hoechst films. initial subjectives prior to testing	February, 1992
Initiate testing under adverse conditions	February, 1992
Subjective evaluation of the conditioned samples on a weekly basis until subjectives are unacceptable for the improved films	May, 1992

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	Recommendations	June, 1992
	Repeat testing, if needed	July, 1992
	Subjective evaluation, as needed	December, 1992

Resources:

Testing	G. Overstreet 0.25 man-years
Subjective evaluation	T. Cravotta/V. Willis 0.20 man-year
CTSD	J. Lightner - 0.02 man-years
ARD	B. Handy - 0.01 man-years

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RJR Flavorseal Overwrap

Objective: Determine if products with Flavorseal packaging maintains their physical, chemical and subjective properties longer than products with polypropylene overwrap.

Introduction: RJ Reynolds uses a metallized polyester overwrap on their Winston and Salem brands. They claim this overwrap keeps the product fresher, longer. This series of tests will look at the products under various environmental conditions to determine if freshness is maintained. The environmental conditions to be tested are ambient, desert, jungle and cycled (inhouse conditioning chamber). The conditions are to cover the possibilities that a product could encounter in the marketplace.

Strategy: Compare the polypropylene overwrap with the Flavorseal overwrap for the Winston and Winston Lights 100's SP and Salem and Salem Lights 100's SP.

Tactics	Timetables
Recommendation on test set-up	February, 1992
Initiate environmental testing	March, 1992
Complete environmental testing. Subjective evaluation every two weeks for the first two months, then monthly for the last four months	September, 1992
Subjective based recommendations	October, 1992

Resources:

Testing (CTSD, QE and ARD)	C. Spielberg, B. Rech and B. Handy - 0.05 man-years
Subjective evaluation	V. Willis and K.Deane 0.04 man-years

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Factory Primary Support
1992 Operational Plan

Objective: To provide support for the subjective qualification of factory primary modernization programs.

Introduction: Factory primary equipment requires periodic upgrades and modernization for more efficient and cost effective processing of tobacco prior to cigarette production. All equipment changes require subjective evaluation and qualification prior to implementation to assure product integrity. Flavor Technology (D. Spruill and subjective panels) will continue this support function as needed throughout 1992.

Stategy #1: Qualify the new MZM export strip operation at McKinney, VA.

Tactics: Compare the current MZM operation with the new MZM facility by preparing products from each location and by performing subjective evaluations for product/process qualification. **February, 1992**

Strategy #2: Qualify new P&S Dryer #3 at the MC.

Tactics: Burley tobacco will be processed at single and double rates.

Analytical and subjective evaluations of 100% burley and Marlboro cigarettes will be performed to qualify the dryer at both rates. **March, 1992**

Strategy #3: Replace and qualify P&S Dryers #1 and #2 at the MC.

Tactics: Evaluate new dryers at single rate.

Prepare cigarettes (100% burley and Marlboro) and evaluate both analytically and subjectively for dryer qualification. **September, 1992**

Strategy #4: Replace and qualify A/C cylinders at the MC.

Tactics: Install one large capacity cylinder, prepare cigarettes and qualify this cylinder subjectively.

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Systematically, remove remaining A/C cylinders and qualify each individually as above. **July, 1992**

Resource Allocations:

Flavor Technology	0.30
Tech. Services	0.05
CTSD	0.05
ARD	0.05
Semi-Works	0.07
Cigarette Technology	0.03
QA and Mfg. Engineering	
Total R&D	0.50

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Small Scale Process Improvement

Objective: To achieve parity with large scale so that sample size would be the only factor for determining whether requests are produced in Small Scale or Large Scale.

Introduction: Modifications were made in the small scale processing in 1991 to bring the processing conditions of the small scale closer to that of large scale. The modifications included the installation of new equipment, and changes in the existing equipment. Since most of the jobs that are requested in small scale have a master blend that was produced in large scale and additional flavor systems are applied in small scale, it was agreed that the process would be qualified from the aftercut system backward. The "old" small scale process still exists (with the exception of a change in the aftercut application) and will be used as in the past.

Strategy #1: Small Scale Processing will continue to be used as a screening tool to reduce the number of samples requested for large scale processing.

Tactics	Timetables
Casings, flavors and blends to be screened from the small scale process prior to making larger quantities in the large scale process	Ongoing

Strategy #2: Establish operating procedures and processing parameters for the new equipment.

July, 1992

Strategy #3: Examine the individual processing steps and strive to understand and minimize the differences between Large Scale and Small Scale.

Tactics	Timetables
Investigate the aftercut application	March, 1992

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Investigate the conditioning, cutting and drying	April, 1992
Investigate bright/oriental casing	June, 1992
Investigate burley top casing	July, 1992
Investigate burley spray	August, 1992
Investigate rotary batch conditioning (vs vacuum conditioner)	September, 1992
Investigate total process	October, 1992
Recommendation	December, 1992

Resources:

Processing	T. Skidmore - 0.2 man-years
Subjective evaluation	K. Deane - 0.01 man-years
Subjective evaluation	C. Scott - 0.02 man-years
CTSD	J. Lightner - 0.01 man-years
ARD	B. Handy - 0.01 man-years

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Tobacco Materials and Reclamation

Objective:	Subjectively evaluate returned goods and/or out of specification filler to determine most cost effective disposition.
Strategy:	Determine most cost effective disposition (rippers, expanded, sheet products) of filler while maintaining subjective integrity.
Tactic:	Prepare cigarette models, determine subjectives, and recommend disposition.
Timetable:	As requested.
Resources:	As required.

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Processing Plant Support

PARK 500 **RL's**

Objective: Provide Flavor Technology support to Park 500 for flavor systems and process modifications to address capacity, economic, environmental and overall quality issues.

Introduction: Evaluation of feedstock humectant level, flavor replacements and equipment modifications have continued to support production in maintaining quality. Implementation of the dry flavor replacement and process modifications contributed to improved processing. Support in 1992 will address feedstock issued such as Class tobacco utilization and alternate denitration options.

Strategy I: Provide support for the evaluation of by-products utilization at Park 500.

Tactics	Timetable
Identify potential ranges of usage from previous tests if available	As requested
Evaluate in RL Pilot Plant prior to Park 500 feedstock	As needed
Stability/Usage of Class W from production sources to Park 500	May, 1992

Strategy II: Develop and evaluate alternate denitration options with Process Development through separate Burley stem processing.

Tactics	Timetable
Apply experiences learned from alternate jobbers trials of separate stem processing.	
RL Pilot Plant trials of RLTC and RLB.	Complete
Chemical and physical analyses of RL's	February, 1992

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Semiworks trials for physicals and subjective testing	March, 1992
Cigarettes analyses and panel tests	April, 1992
Subjective (Go/No go) decision to go to Park 500 RL's	June, 1992
Production trials at Park 500 - Similar tactics as above from Pilot RL's	August, 1992
Complete POL consumer tests, physical tests, and product cost of discarding and treating of burley stem solubles	November, 1992

Resources:

Flavor Technology	B. Taylor - 0.20
Flavor Technology	J. Swain - 0.10
Process Development	R. Uhl/R. Ellis
Process Engineer(Park 500)	D. Saunders
Cigarette Technology	B. Peace
Semiworks	G. Romig/J.Warren
CTSD	J. Lightner
PED	M. Jeltema

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Processing Plant Support

BL PLANT **RCB**

I. Increased Line Speed

Objective: To increase capacity by increasing line speed.

Introduction: Trials began in June, 1991 to increase line speed from 330 fpm to 350 fpm without changing subjectives. The increase line speed at normal solids levels (18.5%) required higher drying temperatures to maintain a 16.0% moisture. Trials in June (1-3) and July (1-3) were ineffective to find the correct dryer profile to maintain subjective parity.

A third series of trials were conducted in November (4-6). These incorporated temperatures in-between the June and July series. It was indicated that temperatures in the initial zones (1-3) have a greater influence on subjectives. The test with the closest average temperature (680°F) to the control (675°F) showed no subjective differences. This test (6) is presently being prepared for POL 03012.

Strategy I: In order to predict dryer temperature profiles at 350 fpm for the other two lines, a better understanding of the dryers is needed. Therefore, a dryer study should be conducted to establish temperature profiles in the following manner:

Tactics	Timetable
A. Document Dryer Operation-All lines	
1. Baseline OV profiles	
2. Baseline air flow/temperatures	
3. Baseline subjectives	
4. Environmental sampling	April, 1992
B. Modify Line 3	
1. Adjust Line 3 dryer setup to Line 1	
2. Subjective evaluations	May, 1992
C. Modify Line 2	

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1. Adjust Line 2 dryer setup to Line 1
2. Subjective evaluations
3. Subjective baseline of Line 2 and Line 3 modifications — October, 1992

Strategy II. Once the modifications to the dryer temperatures are complete, the speed-up trials will be conducted in the following manner:

Tactics	Timetable
A. Speed-Up Trials:	
1. Line 2 trials	
2. Internal subjectives	
3. Line 3 trials	
4. Internal subjectives	February, 1993
B. Subjective Evaluations of the 3 Lines Combined:	
1. Internal evaluations	
2. Conduct POL of RCB(3 Lines)	April, 1993
C. Recommend speedup to BL Plant, if feasible	June, 1993

II. Dry Flavor Replacement

Objective: Develop a liquid flavor system to replace dry flavors in RCB while maintaining subjective parity.

Introduction: The BL Plant is presently using a dry flavor system. The flavors are blended with the production dust and the mixture is not homogeneous. In an effort to produce a more consistent sheet, liquid flavors will replace dry flavors. This will also reduce cleanup in the blending area.

Two sheets were produced in September using 75-700 and 75-700 + 02-130 instead of dry flavors. These prototypes were evaluated and the sheet with 75-700 was selected for further testing. A POL was produced which showed no significant differences.

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Implementation has been recommended to the BL Plant.

Strategy: Implementation will be supported by the preparation of drums of 75-700 at the Flavor Center and personnel will monitor the initial startup. Initial RCB (100%) cigarettes will be subjectively evaluated by members of Group 2305.

III. Mentholated Tobacco Dust (Class 6)

Objective: To increase the utilization level of mentholated tobacco dust in RCB.

Introduction: The current level of mentholated tobacco dust used in RCB is 15% (14.5% Class 6 and 0.5% Class 4M). However, with the present inventory and future plans for generation of Class 6, increased utilization in RCB has been proposed.

During 1991, levels of 15%, 25% and 30% in finished sheet were produced in the Cast Leaf Lab. No menthol was detected subjectively or analytically. Therefore, the above was reproduced in the Process Chemistry and Tobacco Fundamentals Lab. No menthol was subjectively or analytically detected by this process either.

Strategy: Due to the fact that menthol was not detected by either method, trials have been requested in the Cast Leaf Pilot Plant in April prior to production trials.

Tactics	Timetable
Subjective evaluations will be conducted by Cast Leaf Panel and FTD's Panel in Marlboro. Selection of a level of Class 6 for BL Plant trials will based on the results.	June, 1992

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Trials at the BL Plant with the higher level of Class 6 will be requested per BL Plant's schedule.	July, 1992
a. The same subjective procedures will be followed as above with the addition of the MC Panel prior to requesting a POL.	August, 1992
b. Upon completion of qualification tests, recommendation will be made to Leaf Department.	October, 1992

IV. Unwashed Burley Stems

Objective: To evaluate unwashed replacing washed burley stems in RCB to address environmental effluent issues.

Introduction: In August the BL Plant produced RCB using unwashed Burley stems, samples of sheet, slurry and dust were sampled for chemical analyses in an effort to track NO_3-N content.

After internal panel evaluations, a POL was produced using the unwashed burley stems in RCB, but due to low tar values it was not released. A decision was made to remake the test RCB with unwashed burley stems, reduced humectants and liquid flavor for qualification of the combination of changes.

Strategy: Subjectively qualify unwashed burley stems in production RCB.

Tactics	Timetable
BL Plant trial of RCB with unwashed burley stems, reduced humectants and liquid flavor.	February, 1992

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Review of NO_3-N impact on smoke from use of the RCB in blends (R. Uhl,J. Charles and M. Bourlas).	February, 1992
Evaluations of impact on cigarette yield/filling power (R. Uhl).	March, 1992
Subjective qualification-POL test	April, 1992
If implementation is feasible, equipment modifications to bypass extractor and press are anticipated (J. Gomes).	May, 1992

Resources:

Flavor Technology	B. Hoskin - 0.30 man years
Flavor Technology	J. Swain - 0.10 man years
Process Development	R. Uhl
Process Development	G. Gellatly
Process Development	R. McFadden
BL Plant Engineer	R. Smith
Cigarette Technology	B. Peace
Semiworks	G. Romig/J. Warren
CTSD	J. Lightner
ARD	C. Ament

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ALTERNATE SHEET SOURCING

Objective: To qualify potential alternate sources of RL to address capacity issues.

Introduction: Domestic feedstock trials at Spotswood and LTR failed to subjectively replace RLTC while ARL showed more promise. Modes of processing the Burley stems were identified as contributing to the subjective differences in the RL Pilot Plant. Completed LTR trials with European feedstocks and RLTC flavor system were made to comfirm the influence of processing differences.

Strategy: Develop and evaluate alternate(Jobbers) sources of RL with the RLTC flavor system to address long term capacity and European sourcing issues.

Tactics	Timetable
Subjective results of screening 100% LTR cigarettes by PME Leaf Group were similar to our Group's results in 24% handmade cigarettes for recent trials at LTR.	January, 1992.
LTR test sheets produced with the burley press cake routed to the stock chest and concentration of solubles through the Multiple Effect Evaporator were selected for MiniPrimary trials at PME.	February, 1992
Complete storage study of conditions to transport and hold the export TC flavors.	February, 1992
Subjective evaluations in Pan-European and German Marlboro by Panel A may be followed by Consumer Panel testing.	April, 1992
Pending results from these trials, logistics of supplying the flavor system will be coordinated through Operations Services.	As requested

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Resources:

Flavor Technology	J. Swain - 0.05 man years
Flavor Technology	B. Taylor -0.01 man years
Process Development	R. Uhl
Park 500	D. Clark
PME	R. Wagoner
Cigarette Technology	B. Peace
CTSD	J. Lightner

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

COOKED FLAVOR CAPACITY

Objectives: To support cooked flavor production and scale-up the reactor at the Flavor Center.

To qualify alternate sources for high fructose corn syrup and asparagine.

Introduction: The Flavor Center has requested that their cooked flavor reactor be scaled up. The projected demand is larger than their reactor can supply with a one-shift operation. Statistical Process Control (SPC) is going to be introduced and the present vessel is not set up to work with SPC. The larger vessel would therefore have better process control mechanisms, which would decrease the number of rejected or blended-borderline batches.

New suppliers of High Fructose Corn Syrup (HFCS) and asparagine are needed. The variability of HFCS has continued to be an issue while a domestic source of asparagine is desirable. To avoid future quality issues, new suppliers will be evaluated.

Strategy: Flavor Technology personnel will support these goals through collaborations with Operations Services, Engineering, Purchasing and Flavor Center personnel to formulate with the alternate materials and evaluate 75-814 from the improved reactor system..

Tactics	Timetable
Justifications for scale-up will be written by the Flavor Center.	February, 1992
Initiate installation of new reactor.	When approved
Flavor Center trials of cooked flavor using Krystar HFCS and Monsanto asparagine.	July, 1992
Trials of test flavors will be run in the RL Pilot Plant for subjective evaluations on internal panels	When available

Resources:

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Flavor Technology	B. Hoskin - 0.10 man years
Flavor Technology	J. Swain - 0.05 man years
Flavor Center	D. Karnes
Engineering	B. Sorrels
Operations Services	E. Tucker
Process Development	R. Uhl
Semiworks	G. Romig/J. Warren
Cigarette Technology	B. Peace
CTSD	J. Lightner

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Domestic Panel Support

Objective:

1. To provide subjective evaluations (rod and smoking characteristics) of prototypes, modifications of existing brands, new brands and monitoring of competitors' products.

2. To provide training, maintenance and support to auxiliary panels (e.g., Richmond, Semi-Works, filter, paper and Cast Leaf.)

Introduction:

Flavor Technology has provided subjective support to internal and external areas within Philip Morris. In 1991, over 250 panels, 58 subjective profiles of existing brands and one market introduction (Marlboro Medium) were completed. Factory problems concerning subjectives were also addressed. Members of the Cast Leaf program were trained and are currently evaluating Cast Leaf prototypes.

Strategy #1:

Conduct evaluations on development programs, monitoring of domestic competitive brands and any problems associated with production and/or processing plants.

Tactics	Timetables
Complete KGF Study Evaluations	March, 1992
Complete Project Gold Study (Pre-applied Adhesives)	April, 1992
Complete Volatile Component aging study (Lark/Parliament)	May, 1992
Complete Glycerin/Triacetin Study	May, 1992
Complete Study on Export Product Standardization - GCC (Cigarette Shipping	June, 1992
Complete Storage Studies for Winston and Salem (Flavorseal)	October, 1992

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	Subjective evaluation of small scale process improvement models	November, 1992
	Complete PMF Machine Evaluations (Taste/Odor, Stale)	May, 1992
	Complete Hoechst High Barrier Films Study	May, 1992
	Complete Factory Support Evaluations/ Qualifications (Equipment)	December, 1992
	Complete Project Grain Evaluations	December, 1992
	Factory Issues	As needed
	Subjective Evaluation of POL Samples	As needed
	Subjective Characterization of New and Modified Brands	As needed
	Subjective evaluation of Materials from Operations and Technical Services Group	As needed
	Subjective Monitoring of New Brand Startup	As needed
Resources:	Flavor Technology	K. Deane - 1.00 man-years

Strategy #2: Train auxiliary panels to screen development prototypes and to judge acceptability of final products.

Semi-Works Panel

Tactics	**Timetables**
Initiate training on attributes	February, 1992

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Continue training on blends and blend components	April, 1992
Conduct studies on test methodology comparing data from Flavor Tech. and Semiworks panel	May, 1992
Complete training	June, 1992
Review of blends and components	August, 1992

Resource:

Flavor Technology	K. Deane - 0.02 man-years
Semiworks	W. Banks/C. Scott 0.10 man-years

Richmond Panel

Tactics	Timetables
Initiate basic taste, aromatic and attribute training	March, 1992
Continue training on blends and components	May, 1992
Training completed	June, 1992
Review of blends and blend components	August, 1992

Resource:

Flavor Technology	K. Deane - 0.01 man-years
New Products	D. Atkinson - 0.02 man-years

Filter and Paper Development Panels

Tactics	Timetables

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Initiate basic taste, aromatic and and attribute training	March, 1992
Continue training with blend and blend components	May, 1992

Tactics	Timetables
Characterization of filter and paper prototype	June, 1992
Completed training	July, 1992
Review of blends and blend components	September, 1992

Resource:

Flavor Technology	K. Deane - 0.01 man-years
Paper Technology	Barbro Goodman - 0.02 man-years
Filter Technology	Ken Newman - 0.02 man-years

Cast Leaf Panel

Continue evaluation of prototypes (produced in the Cast Leaf Pilot Plant)	October, 1992
Final recommendations based on subjectives	October, 1992

Resource:

Flavor Technology	K. Deane, B. Taylor, B. Hoskin and V. Willis 0.50 man-years
Process Development	T. Holland, G. Gellatly and M. Parker 0.08 man-years

Flavor Technology Panel

Review blend and blend components	April, 1992

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	Conduct studies on test methodology with the Semiworks panel	May, 1992
	Develop terminology definitions	July, 1992
	Review of blend, blend components and attributes	September, 1992

Resource:

Flavor Technology	K. Deane - 0.10 man-years
Semiworks	G. Romig/J. Warren - 0.01 man-years
PED	J. Tindall (PED) - 0.005 man-years

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

International Panel Support

Objective: 1. To provide subjective evaluations (rod and smoke characteristics) of development prototypes, modifications of existing brands and monitoring of export (PM and competitors) brands.

Objective: 2. To provide training and maintenance for the international panel and auxiliary export panels.

Introduction: The International panel has provided subjective support to internal and external areas within Philip Morris. Forty-eight (48) subjective characterizations and 96 panels were completed in 1991.

Strategy #1: Continue to monitor existing brands and provide subjective evaluations in prototype development. Further training will be conducted to standardize panel.

Tactics	Timetables
Screening in basic taste, aromatics, use of scales and attribute training	March, 1992
Standard Method - Sensory Evaluations Workshop for the Australia/Asia Pacific Region (review of panels and sensory techniques	March, 1992
Training on blends and components (export and domestic)	May, 1992
Complete Distribution System studies (Panama)	As needed
Complete training	July, 1992
Subjective characterization of export brands	Continuous
New or modified brand startup	As needed

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	Factory issues	As needed

Resources:

Flavor Technology Panel	K. Deane - 0.10 man-years
Workshop	B. Taylor - 0.01 man-years
Semiworks	G. Romig and J. Warren 0.01 man-years
CTSD	J. Lightner - 0.01 man-years
ARD	B. Handy - 0.01 man-years

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Marlboro Standardization

Objective:

1. To identify and reduce sources of variations in PM brands between production and processing facilities.

2. To provide training, maintenance and support to factory panels which could possibly identify and reduce sources of taste/odor/stale customer complaints.

3. To subjectively test and monitor Marlboro product from different locations externally (POL testing).

Introduction:

Marlboro Standardization was initiated in 1984 to ensure PM brands produced at different locations were subjectively equivalent. In February, 1985, the first factory pickup of Marlboro LS and KS was conducted with Standard Runs I and II following in June and September. These runs concentrated on the subjective effects of interchanging ET with DET, age of materials and aftercut tobacco temperatures. A Marlboro Standardization panel was started to subjectively evaluate the pickups and standard runs. From 1985-1991, nine standard runs have been completed. A historical database on raw materials, direct materials, processing parameters, blend components, etc. has been established. This data has been used in qualifying equipment, determining uniform processing parameters and product development. Good manufacturing practices and process specifications for primary culminated from this data. These manufacturing practices and process specifications have been issued to the production facilities for daily use.

Strategy #1: Conduct factory pickups and a standard run to monitor the quality of Marlboro by subjective and analytical testing.

Tactics	Timetables
Factory pickup of Marlboro and Marlboro Medium KS and FTB	February, 1992
Issue results of February pickup	April, 1992

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Factory pickup of Marlboro Lights SP and FTB	April, 1992
Issue results on April pickup	June, 1992
Factory pickup of Marlboro and Marlboro Medium SP and FTB	June, 1992
Issue results of June pickup	July, 1992
Prepare for Marlboro Standard Run X	July, 1992
Marlboro Standardization Run X	August, 1992
Issue subjective results from Marlboro Standard Run X	October, 1992
Factory pickup of Marlboro Lights SP and FTB	October, 1992
Issue revised Factory Panel Leader Manual	December, 1992
Factory pickup of Marlboro and Marlboro Medium SP and FTB	December, 1992
Transfer flavor audits to Factory QA's	December, 1992

Resources:

Flavor Technology	K. Deane and K. Lam 1.0 man-years
Cigarette Technology	D. Atkinson - 0.05 man-years
Packaging/Flavor Technology	B. Mait - 0.03 man-years
CTSD	J. Lightner - 1.0 man-years
ARD	B. Handy - 0.20 man-years
PED	A. Smith 0.10 man-years
Operational Services	R. Hatcher - 0.10 man-years
Semiworks	J. Warren - 0.08 man-years
Cabarrus Panel	J. Crowe - 0.15 man-years

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Manufacturing Center Panel	K. Smith 0.15 man-years
Louisville Panel	D. Price - 0.15 man-years
Stockton Street Panel	R. Freelin - 0.15 man-years

Strategy #2: Training for factory panels and quarterly panel leader workshops will be conducted. The factory panels will monitor their daily production which could identify and possibly reduce taste/odor/stale customer complaints. Factory panels will also evaluate factory pickups and Standard Run X for monitoring purposes.

Tactics	Timetables
Cabarrus Factory Panel	
Submit materials for screening of panelists on taste and odor and use of scales	January, 1992
Initiate Attribute Training	February, 1992
Factory Panel Leadership Workshop	March, 1992
Continue Attribute Training	March, 1992
Review of blends and blend components	April, 1992
Complete training	June, 1992
Factory Panel Leadership Workshop	July, 1992
Blend and blend components (includes export blends produced at Cabarrus) characterization	September, 1992
Issue revised training manual	November, 1992
Factory Panel Leadership Workshop	December, 1992

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Louisville Factory Panel

Factory Panel Leadership Workshop	March, 1992
Screening of panelists on basic taste, aromatics and use of scales	April, 1992
Attribute Training	April, 1992
Menthol Training	May, 1992
Review of blends and blend components	May, 1992
Complete training	July, 1992
Factory Panel Leadership Workshop	July, 1992
Review menthol levels and blends	September, 1992
Issue revised training manual	November, 1992
Factory Panel Leadership Workshop	December, 1992

Manufacturing Center Panel

Factory Panel Leadership Workshop	March, 1992
Screening of panelists on basic taste, aromatics and use of scales	April, 1992
Attribute Training	April, 1992
Blends and components characterization	June, 1992
Complete training	July, 1992
Factory Panel Leadership Workshop	July, 1992
Issue revised manual	November, 1992

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Factory Panel Leadership Workshop	December, 1992

Stockton Street Panel

Factory Panel Leadership Workshop	March, 1992
Screening of panelists on basic taste, aromatics and use of scales	March, 1992
Attribute Training	April, 1992
Blends and blend components (export blends produced at S/S) characterization	June, 1992
Characterization of export brands	August, 1992
Complete training	October, 1992
Issue revised manual	November, 1992
Factory Panel Leadership Workshop	December, 1992

Resources:

Flavor Technology	K. Deane - 0.10 man-years
Cabarrus Panel	C. Bridges and T. Alexander 0.10 man-years
Manufacturing Center Panel	J. Chiarello - 0.10 man-years
Louisville Panel	B. Wayne - 0.10 man-years
Stockton Street Panel	H. Partin and B. Coleman 0.20 man-years

Strategy #3: POL testing (monadic evaluation) of scheduled factory pickups and cigarettes produced from Standard Run X. This will aid in defining Marlboro control regions and develop new statistical methods.

Tactics	Timetables

Factory Pickups

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Stockton Street SP	1/27/92
Stockton Street FTB	2/10/92
Stockton Street FTB	3/2/92
Cabarrus SP	3/9/92
Louisville FTB	4/21/92
Manufacturing Center SP	5/26/92
Semi-Works SP	6/8/92
Louisville FTB	8/10/92
Manufacturing Center FTB	10/5/92
Semi-Works FTB	11/2/92
Louisville SP	11/30/92
Cabarrus FTB	12/3/92

Standard Run X

Marlboro LS and KS (M/C)	9/8/92
Marlboro LS and KS (CBS)	9/14/92
Marlboro LS and KS (LVL)	9/21/92
Marlboro LS and KS (S/S)	9/28/92
Marlboro LS and KS (SW)	9/28/92
Marlboro LS and KS (PMF)	9/28/92

Resources:

PED	A. Smith - 0.15 man-years
Technical Services	J. Hutchison - 0.20 man-years
Semiworks	J. Warren/G. Romig - 0.06 man-years
CTSD	J. Lightner - 0.04 man-years
Products Technology	D. Atkinson - 0.01 man-years
Flavor Technology	K. Deane - 0.10 man-years

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ARD

B. Handy - 0.02 man-years

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Cigarette Storage/Transportation/Shipping Study
(Support to Quality Engineering)

Objective: Define the impact of cycling temperature and humidity typically seen within shipping containers and the effects of heating and cooling cycles on product discoloration, staining, subjectives, and analyticals.

Introduction: Based on information from simulated studies on the shipping containers and the Export Product Standardization - Singapore study, a program was formulated to address several issues. The first phase of the simulated study at KGF was a cycling of temperature and humidity conditions during a twenty-four (24) hour period. The testing was conducted at KGF with the profiles typically seen in Richmond in August through the beginning of September.

A total of fifteen (15) samples were shipped to KGF for testing. The following dates were designated for sample acquisitions from the Storage Box at KGF.

Test initiated	December 9, 1991
Pick-up #1	December 12, 1991
Pick-up #2	December 19, 1991
Pick-up #3	December 26, 1991
Pick-up #4	January 2, 1992
Pick-up #5	January 9, 1992
Pick-up #6	January 16, 1992
Pick-up #7	January 23, 1992

Strategy #1: Subjectively evaluate the fifteen models that were shipped to KGF and returned to Richmond without being exposed to the simulated study with cycling temperature and humidity conditions. Evaluate each of the models from the scheduled acquisitions of the simulated study and compare them to the control to determine when and how the subjective effects of the products changed.

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Tactics	Timetables
Complete initial evaluation of models shipped to KGF and returned to Richmond	January, 1992
Complete evaluation of models shipped to KGF and exposed to the conditioning chamber (Standard film)	February, 1992
Complete subjective evaluation of cartons with higher gauge film, with and without overwrap, that have been subjected to the cycling temperature and humidity conditions., to determine the quality and effect on subjectives	March, 1992

Resources:

Testing	B. Rech and M. Mobrem - QE G. Overstreet - 0.05 man-years
Product Development contact	B. Tierney and V. Graff-Muse 0.10 man-years
Subjective evaluation	V. Willis and K. Deane 0.04 man-years
Analytical evaluation	M. Mobrem and Judith Lighter 0.05 man-years

Strategy #2: Repeat the testing in Strategy #1 with specified models and conditions for the Export Product Standardization - Singapore and the GCC Study to determine the effects of cycling temperature and humidity conditions in the shipping containers. Conditions, based on previous data, will be simulated in a controlled environmental chamber.

Tactics	Timetables
Initial evaluation of models from the inhouse conditioning chamber with standard materials	June, 1992

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Complete subjective evaluation of high gauge film from the inhouse conditioning chamber	July, 1992
Report findings	August, 1992
Recommendations	September, 1992

Resources:

Testing	B. Rech and M. Mobrem - QE G. Overstreet - 0.05 man-years
Cigarette Technology contact	B. Tierney and V. Graff-Muse 0.03 man-years
Subjective evaluation	V. Willis and K. Deane 0.04 man-years
Analytical evaluation	M. Mobrem and J. Lighter 0.01 man-years
ARD	B. Handy 0.01 man-years

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Export Product Standardization - GCC

Objective: Determine the impact of adverse environmental conditions upon the subjective character and analytical specifications of finished products. Compare the results of this study with similar studies conducted using products with carbon filters.

Introduction: Concerns have existed for years over the condition(s) of P.M. products that reach consumers in foreign countries due to the excessive transport time, climatic conditions, damage, etc., which occur between the initial shipping date and the date of consumer purchase.

This project addresses the subjective character changes due to adverse climatic conditions with time, and to provide insight to resolve these subjective changes.

Status: The following models are under evaluation for the GCC Export Product Standardization:

Control: Marlboro LS FTB (12.5% Pack O.V.) with GCC leaf blend, standard casings and standard export aftercut

Test #1: Same as Control with 13.25% Pack O.V.

Test #2: Marlboro LS FTB (12.5% Pack O.V.) with GCC leaf blend, standard casings and domestic aftercut

Test #3: Same as Test 2 with 13.25% Pack O.V.

Strategy Environmental testing with subjective and analytical tracing to determine the effect of subjectives and flavor at adverse conditions.

Tactics	Timetables
Initiate environmental testing	December, 1991

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Interim report for the Desert, Jungle, Coldroom and Ambient conditions over the six weeks of testing and subjective evaluation	February, 1992
Complete the six month testing for analytical and subjective testing	June, 1992
Comparison of results with carbon filter products	August, 1992
Completion report and recommendations	September, 1992
Produce products with recommended changes	October, 1992
Subjective evaluation	November, 1992
Make products with recommended and the best film to date and initiate environmental testing	January, 1993

Resource:

Internal subjectives	K. Deane - 0.02 man-years
CTSD	L. Chambers - 0.01 man-years
Flavor Analyses	B. Hale - 0.02 man-years
Component Analyses on filler/ARD	B. Handy - 0.01 man-years
Flavor Technology	M. Garrett 0.05 man-years
Cigarette Technology	V. Graff-Muse and B. Tierney 0.01 man-years
Quality Engineering	B. Rech - 0.005 man-year

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Volatile Component Aging Study

Objective: Determine the subjective and analytical changes in products with carbon in filters which occur under various conditions with age.

Introduction: For years, the effect of activated carbon (high surface area) on volatile substances has been well documented. Activated carbon has been used in certain cigarette filters for its "filtering" effect of smoke "gas phase". However, little is known in the correlation between this "absorption" effect in the cigarette before use and the after effect in the subjectives during use. This project is an attempt to identify that correlation.

Strategy: Environmental testing with subjective and analytical tracing to determine the effects of subjectives and flavor at adverse conditions

Tactics	Timetables
Initiate environmental testing	November, 1991
Interim report for the Desert, Jungle, Coldroom and Ambient conditions over the six weeks of testing and subjective	February, 1992
Complete the six month testing for analytical and subjective testing	May, 1992
Completion report and recommendations	June, 1992

Resources:

Flavor Technology	M. Garrett - 0.02 man-years
Flavor Technology subjectives	K. Deane - 0.02 man-years
Cigarette Technology	V. Graff-Muse and B. Tierney 0.003 man-years
CTSD	L. Chambers - 0.01
Flavor Analyses	B. Hale - 0.01
Component Analyses on Filler	B. Handy - 0.005
Factory Logistics	Rainey 0.005
ARD	B. Handy - 0.01 man-years

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Brand Maintenance

Objective:

To assist Technical Services personnel in making recommendations for corrective actions to keep all current brands within specified delivery targets.

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Brand Maintenance

Explanatory Introduction:

Primarily due to fluctuations in tobacco blend availability, minor changes in the specifications of certain products have to be made to maintain delivery (tar, menthol) targets. R&D assists Technical Services in choosing the most appropriate changes.

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Brand Maintenance

Strategy I: - Recommend Change

Tactic

Evaluate current data
Evaluate past data for trends
Recommend change or corrective action

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Brand Maintenance

Strategy II: - Teach and Train

Tactic

Explain consequences of:

a. Corrective action if spec. change not required.
b. Specification change and reason for particular choice.

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000

Brand Maintenance

Resource Allocation:

Warren Claflin	Technical Advisor
Morris White	Domestic Product Development
Debbie Atkinson	Domestic Product Development
Kelli Poindexter	International Product Development

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Source: https://www.industrydocuments.ucsf.edu/docs/ktjl0000